

# **TRIAL EXHIBIT 158**

From: andyt@google.com. Sent: 9/28/2006 8:05 PM.  
To: [ - ] tangjianfeng@chinamobile.com.  
Cc: [ - ] billwli@google.com; arubin@google.com.  
Bcc: [ - ] .  
Subject: Materials on Google Open Handset OS.

Dir. Tang,

Pls see attached for the materials on our open handset OS.

Let me know if you need more info,

Thanks!

Andy

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

**TRIAL EXHIBIT 158**

CASE NO. 10-03561 WHA

DATE ENTERED \_\_\_\_\_

BY \_\_\_\_\_  
DEPUTY CLERK



# Android

Open Handset Platform

---





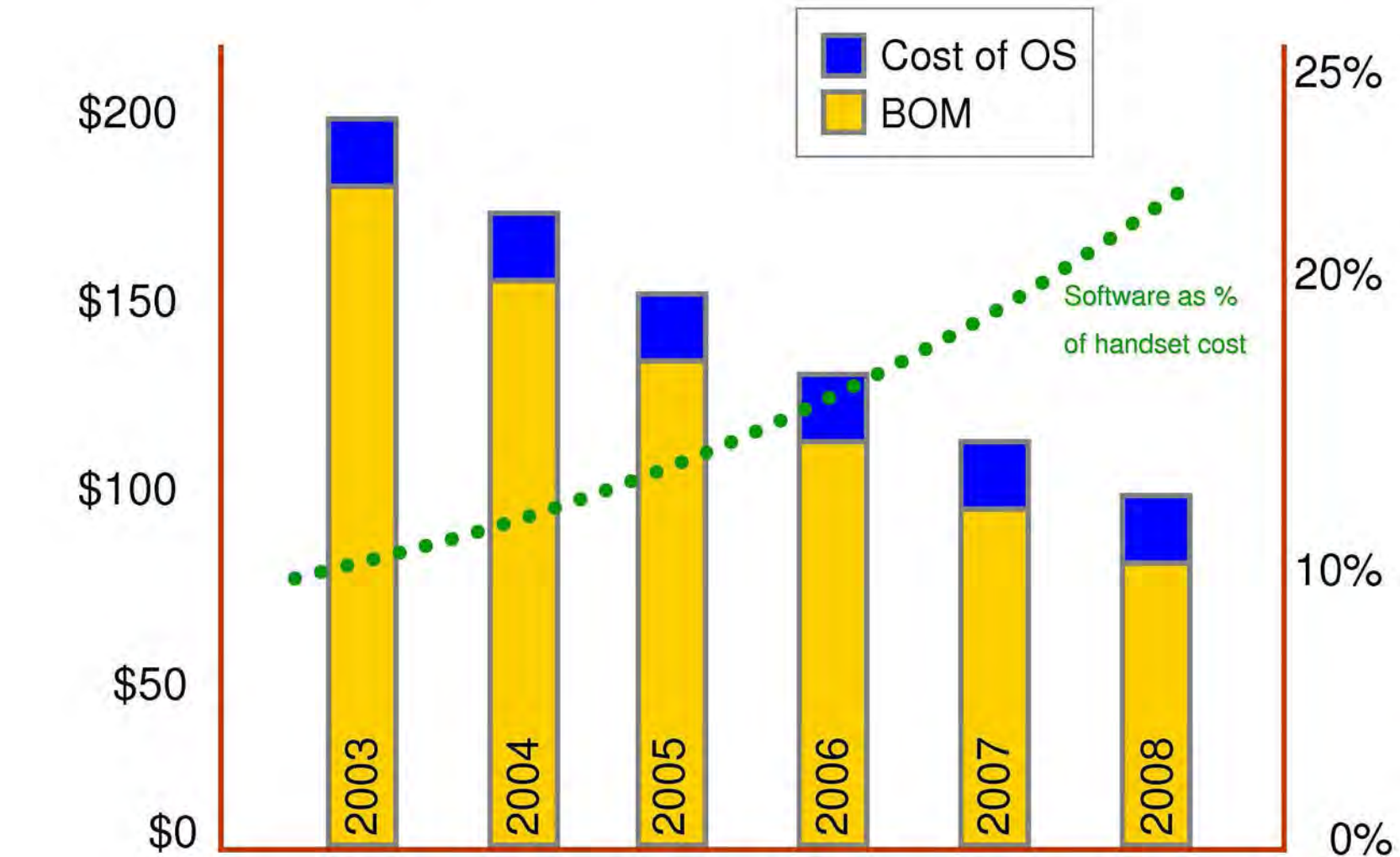
We are building an Open Source handset solution with built-in Google applications

We have created an alliance of interested partners who wish to help define the platform

Google confidential

2

## Handset Commoditization



Source: ARCchart estimates

BOM = Bill of Materials, hardware cost of phone

Google confidential

3



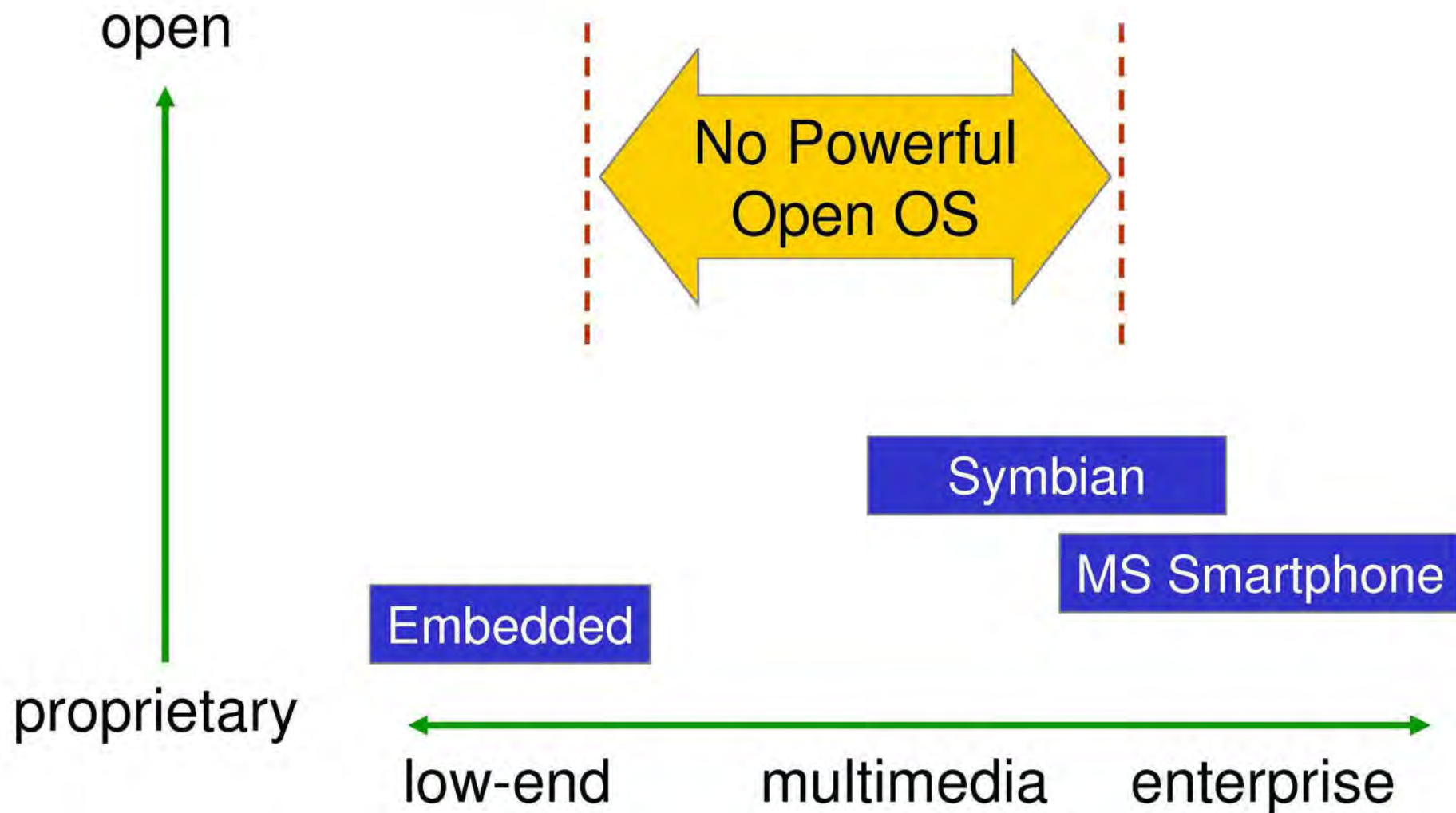


## The Problem

- Hardware innovation has out paced software innovation
- Wireless Operators have become more demanding of software capabilities, need ability to differentiate
- Handset OEMs are not modern software development shops and have proved weak at being integrators

Google confidential

4



Google confidential

5

## Improving the core platform



- Proven Open Source platform has worldwide adoption
- Linux kernel enables hardware abstraction
- World class XML based graphics subsystem enables high performance carrier customization
- Telephony API's support multiple semiconductor architectures
- Application stack supports Smartphone-like feature set
- Simulation environment supports off-device development
- UI mark-up tool enables point and click UI creation

Google confidential

6



## Improving the core platform (cont'd)



- Google & Alliance will make the integrated Java/Linux Mobile Platform available through an open source distribution
- Companies will be able to adopt this solution and customize for their own devices & network... Including components, applications and branding
- The Java platform will be CDC based with the ability to run all the midlet-base content
- Application framework and optimized graphics system built on top of Linux kernel

Google confidential

7

## A complete stack is the way to accelerate adoption



Fact: Industry noise around Linux is at its all-time high. Still, no one is offering a complete platform in an open way -- instead, we find people using open source as a marketing advantage, and offer only certain layers of the stack. Examples:

- Access/PalmSource: Using Linux to build a closed system
- Motorola/Samsung/NTT/Vodafone-Japan: Trying to specify apps environment.  
Where are the software companies?
- TrollTech: Green Phone. NOT OPEN.
- MLI, LiPS: Specification only, no implementation.

**Strategy: Open Source the entire stack only after the first devices show up in the market. Send a strong signal to the industry that they now have everything they need to build devices as-good-as or better than the ones we just released.**

Google confidential

8

## Supporting Java is the best way to harness developers




Fact: Linux fragmentation threatens value. Tools and new app frameworks are biggest hurdles. 6M Java developers worldwide. Tools and documentation exist to support app development without the need to create a large developer services organization. There exist many legacy Java applications. The wireless industry has adopted Java, and the carriers require its support.

Strategy: Leverage Java for its existing base of developers. Build a useful app framework (not J2ME). Support J2ME apps in compatibility mode. Provide an optimized JVM (Dalvik). Integrate class libraries and other technology from Skelmir acquisition to accelerate effort.

Google confidential

9





Details

- Google & Alliance will make the integrated Java/Linux Mobile Platform available through an open source distribution
- Companies will be able to adopt this solution and customize for their own devices & network.... Including components, applications and branding
- The Java platform will be CDC based with the ability to run all the midlet-base content
- Application framework and optimized graphics system built on top of Linux kernel

Google confidential

10



## How China Mobile can participate and what benefits it can reap



Google invites China Mobile to be one of the first carriers to embrace an open OS and make a significant impact on the mobile industry, not just in China, but worldwide

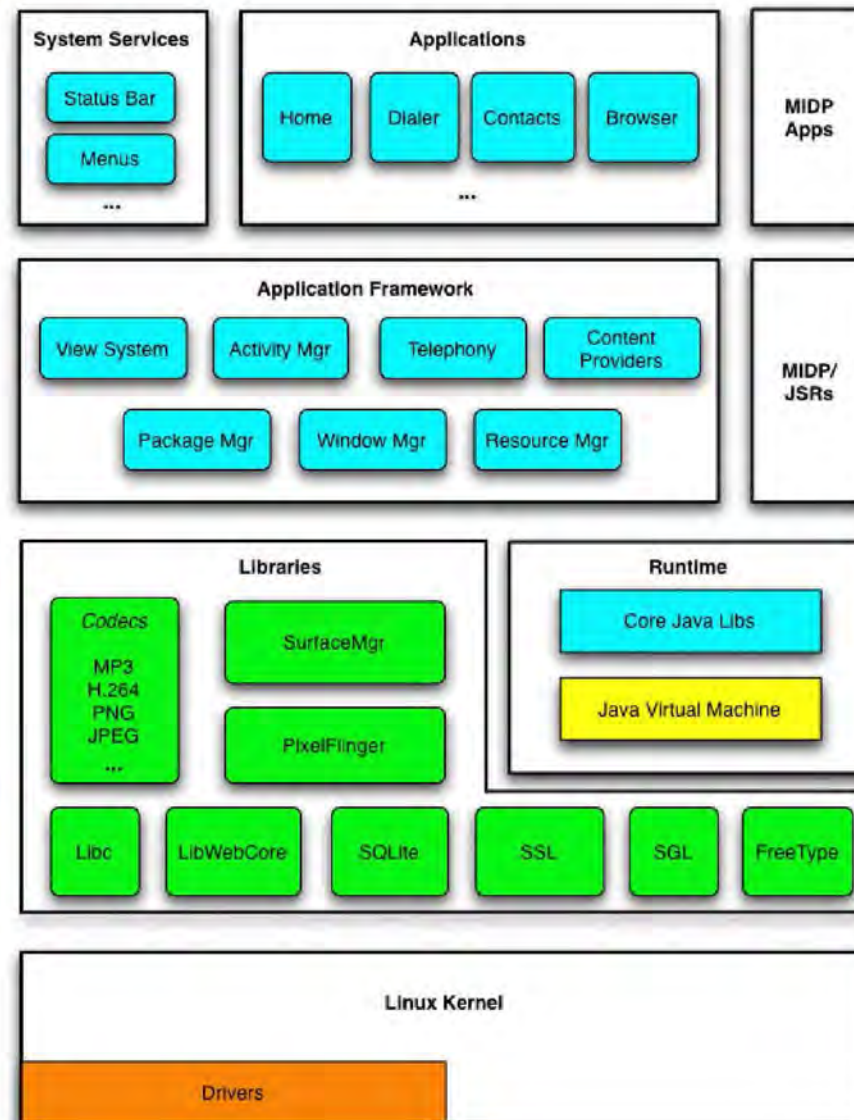
As a participant, China Mobile will be able to

- Help shape the OS platform requirements with carrier services in mind
- Deploy its next generation mobile devices & services based on this platform
- Develop together with Google an innovative handset using the OS to demonstrate power of the open platform

Benefits of working with Google

- Google has the best mobile software industry experts
- Google's OS is the most open platform with the most flexible license
- Google has tremendous expertise in user-centric software design
- Google will invest to help China Mobile succeed

# Appendix – Google handset OS architecture



Google confidential

12